ARMY G-4

MATERIEL READINESS /PREDICTIVE ANALYSIS MODELS:

<u>MODEL</u>   <u>BRIEFER/AGENCY</u>

–   **READINESS PREDICTIVE**   **Ms. Marcia Byrnes & Dr. Dan Parker**

 ANALYZER (RPA)   **Logistics Support Activity**

– **EQUIPMENT DOWNTIME ANALYZER (EDA)**   **Mr. Eric Peltz**

                    RAND Arroyo Center

Ms. Marcia Byrnes

USAMC Logistics Support Activity (LOGSA)
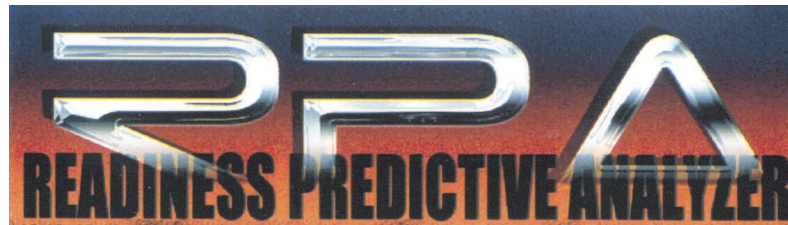Readiness Predictive Analyzer (RPA)

Jan 05

U.S. Army Materiel Command

ESSENTIAL IN PEACE, INDISPENSABLE IN WAR

Readiness Predictive Analyzer (RPA)

- **Purpose: Provide an RPA overview**
- **Outline**
  - **Objective**
  - **Capability Description**

RPA Purpose

- **Objective**

  - **Provide Near Real Time Situational Awareness to Quickly Identify Logistics Solutions to Improve Fleet Availability Supporting Warfighter Readiness … Near Real Time Data Versus 15 - 45 Days Old Data**

- **Plan**

  - **Partner to Develop a Class of User View**

  - **Utilize Existing Web Technology**

  - **Leverage Existing and Emerging LOGSA Products**

  - **Focus on Analysis and Forecasting Equipment Availability**

  - **Ensure integration with the Army Enterprise**

- **Solution**

  - **Readiness Predictive Analyzer Incorporates Embedded Technologies and Integrated Applications to Ensure Logistics Responsiveness to Warfighter**

US Army Logistics Support

LOGSA's Mission:
Provide logistics intelligence, life-cycle support, and technical advice and assistance to the current and future force; Integrate force, readiness, authorization, and asset logistics information for world wide equipment readiness, distribution pipeline performance analysis, and asset visibility for timely and predictive decision making.

What We Do:
- Own and sustain the Army's Logistics Integrated Data Base (LIDB)
- Serve as the Army's Clearinghouse for Logistics Data and Information
- Provide a Consolidated View of the Entire Logistics System
- Provide On Site Packaging, Storage, and Containerization Guidance and Assistance
- Provide, Challenge, Control and Expedite Army and Army-Sponsored Air

What We Manage:
- Army Total Asset Visibility
- ETMs/IETMs
- Army Oil Analysis Program
- Army Air Clearance Authority
- PS Magazine
- ILS Policy

- Sets, Kits, Outfits and Tools (SKOT) Library
- Army Usage Data
- Readiness Integrated Data Base
- Vehicle Registration Program
- Unique Item Tracking
- Army Portion of FEDLOG
- Life Cycle Management Models

- DODAACS, RICs and Army Project Codes
- Packaging & Containerization Testing
- Army Shelf-Life Program
- HAZMAT Management System
- Army Intermodal & Distribution Platform Program

The Magnitude:
- Over 5 Billion Data Records
- 10,000 Reference Tables
- 2.5 Million Transactions Daily

Worldwide Operations ...
- ▯ Redstone Arsenal, AL
- ▯ Tobyhanna Army Depot, PA
- ▯ Pensacola, FL
- ▯ Ft. Lewis, WA
- ▯ Alexandria, VA
- ▯ Balad, Iraq

AMC LOGSA--Supporting Warfighters Global

Data Integration Mission

Data Collection

Joint
- Assets/Serial Num.
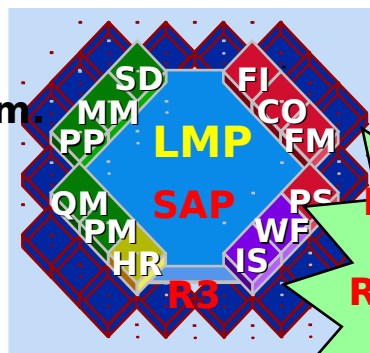- Cataloging
- Oil Analysis

Army Strategic
- Force Structure
- Authorizations

National
- Cataloging
- Requisition
- Asset
- Procurement

Tactical
- Asset (SPBS-R)
- Maintenance (SAMS)
- Demands (ULLS-G)
- Requisition Status (SARSS)
- Readiness (AMSS)
- Serial Numbers

SD
FI
MM
CO
PP
LMP
FM
QM
SAP
PS
PM
WF
HR
IS
R3

Real Time Data Replication

GCSS-A

Legacy STAMIS' Volumes
- 2.5 Million Trans x Day
- 40,000   Army Locations
- 18,000   Property Books
- 7,000+ End Items
- 1,250,000+ NIINs

LIDB

- Asset/Serial Number Visibility
- Supply Management VM/RWT Metrics
- Readiness Analysis
- Force Structure
- Pipeline Visibility
- Item Identification (SB 700-20/AMDF)
- Weapon Sys. Analysis
- Aircraft Fly Hours
- Ground Equip. Usage
- Army Authorizations
- War Reserve Rqts.

WebLIDB

Data Distribution

Reports
- Push/Pull
- Customers

HQDA

- HQAMC
- MACOMS
- MSC/NICPs
- Army/Corps/Div. Staffs
- Installations
- Field Army
- BDE/BN/CO

TOOLS
- Web Based
- Client Server Access

Retail, Wholesale & DoD Systems
– Supply Rooms
– Motor Pools

Web Enabled

LOGSA Integrated Capability

Enterprise Data Warehouse

Force
Item
Assets
Pipeline
Readiness
Maintenanc

WebLIDB

- Web Based
- Detailed Data
- Limited

LIDB Client Server

- Detailed Data
- All Modules

WebLOG

- Web Based
- Summary Level Information and Prepared Reports
- All Modules

LIDB

Force
Item
Assets
Maintenance
Pipeline
Readiness

Horizontal Integration

2.5 M Incoming Transactions Per Day (SPBS-R, PBUS-E, SAMS, ULLS-G, SARSS, CCSS, LMP) 6 Terabytes/3.9B Records, 8.5K Data Tables

Parts Tracker

- Transportation Segment of Pipeline
- Plain English Status

- Real Time Situational Awareness
- Fleet Availability
- Digital Dash Board

RPA Forecasting Logic Methodology

Readiness Prediction - a Function of:

Mean Time Between Failure (MTBF)
Mean Time to Repair (MTR)
Supply Availability (SA)
Maintenance Capacity and Backlog (MCBL)

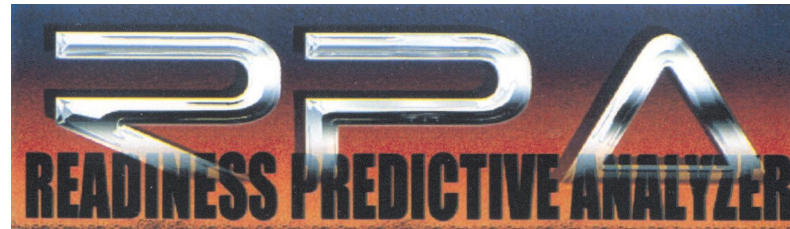- **LOGSA Interim Approach Utilizes:**
  - **Global Supply Availability**
  - **Observed Customer Wait Time by Pipeline Node**
  - **Observed MTBF Based on Work Orders Processed**
  - **Observed MTR Based on Maintenance Actions**
- **Failure and Maintenance Forecast:**
  - **Based on Maintenance Performed by NIIN Based on Statistical Average**
  - **Utilizes a 98% Confidence Interval**
- **Supply Forecast:**
  - **Based on Supply Availability**
  - **Customer Wait Time and Where Request is Currently in Pipeline**

Demonstration

Readiness Predictive Analyzer

Legend

Executive Logistics Summary (ELS)

Aircraft	EA%	PR	AP	EUSA	FORSCOM	NGB	USAREUR 7A	USARPAC
Apache	95.7	G	G	90.0	95.5	100.0	95.7	
Blackhawk	95.2	G	G	88.0	94.2	98.3	91.2	97.3
Chinook	96.8	G	G	76.7	99.5	97.4	100.0	97.1
Kiowa	89.7	G	G	0.0	91.7	100.0	68.4	96.0
Air Defense	**EA%**	**PR**	**AP**					
Patriot								
Combat Trk	**EA%**	**PR**	**AP**					
Abrams	91.6	G	G	91.3	87.8	97.7	84.6	
Bradley	88.3	A	G	91.6	82.0	98.0	79.8	
MLRS	94.1	G	G	93.3	90.0	96.8	94.8	
Paladin	94.8	G	G	96.3	93.9	98.4	84.2	
Combat Whl	**EA%**	**PR**	**AP**					
Avenger	95.3	G	G	92.3	95.8	95.4	92.9	100.0
Tactical	**EA%**	**PR**	**AP**					
FMTV	94.6	G	G	96.7	93.4	97.5	100.0	96.3
HEMTT	88.9	A	R	89.8	89.0	91.1	79.2	97.5
HMMWV	94.2	G	G	91.3	95.0	93.7	90.9	96.1
TOW HOW	91.4	G	G		87.8	92.4		95.0
Engineer	**EA%**	**PR**	**AP**					
ACE	82.4	A	R	86.7	80.7	100.0	78.9	
AVLB	90.8	G	G	96.0	90.2	99.1	66.2	
SEE	87.4	A	G	70.4	90.1	87.1	55.7	95.0

Readiness Predictive Analyzer

Legend

FORSCOM

Aircraft	EA%	PR	AP	101st Airborne	10th Mountain	1st Cav	3ID (M)	4th ID	82nd Airborne
Apache	95.5	G	G	100.0		100.0	95.3	45.0	
Blackhawk	94.2	G	G	100.0	100.0	100.0	100.0	52.4	100.0
Chinook	99.5	G	G	100.0			100.0	100.0	
Kiowa	91.7	G	G	100.0	100.0	100.0		87.5	100.0
Air Defense	EA%	PR	AP						
Patriot									
Combat Trk	EA%	PR	AP						
Abrams	87.8	A	G			93.8	90.4	95.1	
Bradley	82.0	A	G			92.0	89.2	72.4	
MLRS	90.0	G	G			100.0	77.8	100.0	
Paladin	93.9	G	G			98.0	98.4	90.8	
Combat Whl	EA%	PR	AP						
Avenger	95.8	G	G	85.1			100.0	100.0	98.9
Tactical	EA%	PR	AP						
FMTV	93.4	G	G	90.8	92.4	94.7	97.0	88.5	90.6
HEMTT	89.0	A	G	72.5	80.0	93.0	94.4	69.2	92.9
HMMWV	95.0	G	G	93.1	93.2	96.8	97.5	80.1	93.4
TOW HOW	87.8	A	G						
Engineer	EA%	PR	AP						
ACE	80.7	A	R			84.6	81.8	50.0	
AVLB	90.2	G	R			94.4		100.0	
SEE	90.1	G	G	100.0	0.0	50.0	100.0	66.7	93.9

Readiness Predictive Analyzer

Legend

FORSCOM - 3rd Infantry Division - UEx

Aircraft	EA%	PR	AP	AVN UA	Fires UA	SUA	UA 1	UA 2	UA 3	UA 4	Division Troops
Apache	95.3	G	G	95.1							
Blackhawk	100.0	G	G	100.0							
Chinook	100.0	G	G	100.0							
Kiowa											
Air Defense	EA%	PR	AP								
Patriot											
Combat Trk	EA%	PR	AP								
Abrams	90.4	G	G				93.0	89.5	95.5	84.1	
Bradley	89.2	A	G				90.5	85.0	90.7	91.8	
MLRS	77.8	A	R		77.8						
Paladin	98.4	G	G				100.0	93.8	100.0	100.0	
Combat Whl	EA%	PR	AP								
Avenger	100.0	G	G				100.0				
Tactical	EA%	PR	AP								
FMTV	97.0	G	G	98.7	100.0	96.4	98.1	95.5	94.4	98.4	
HEMTT	94.4	G	G	96.0	94.4	94.3	98.4	92.7	86.0	95.0	
HMMWV	97.5	G	G	99.5	97.1	91.4	99.7	96.9	97.1	94.7	
TOW HOW											
Engineer	EA%	PR	AP								
ACE	81.8	A	R				0.0			66.7	
AVLB											
SEE	100.0	G	G							100.0	

Division Deadlined Worksheet (All Items)
Materiel Management Officer

Last Update: 29-Dec-2004 13:49

Days Remaining in Reporting Period: 17

FORSCOM - 3rd Infantry Division - UEx
(Division Rollup)

AVN UA	Fires UA	SUA	UA 1	UA 2	UA 3	UA 4
BDE rollup	BDE rollup	BDE rollup	BDE rollup	BDE rollup	BDE rollup	BDE rollup

Export to Microsoft Excel

	CURRENT_STATUS	EA_RATE	WPN	NIIN	GRAPH	LIN	EIC	MODEL	QTY	NMC	BANK_DAYS	BURN_DAYS	NMC_DAYS_LEFT	PROJ_STATUS
1	R	81.80	ACE	008087100		W76473	ASA	M9	11	2	34	18	16	A
2	R	89.30	BRADLEY	012487619		F40375	ALG	M2A2	28	3	84	27	57	A
3	R	89.10	BRADLEY	014059886		F40375	APE	M2A2WODS	220	24	676	216	460	A
4	R	85	BRADLEY	014059887		F60530	APF	M3A2WODS	40	6	123	54	69	A
5	R	50	FIREFINDER RADAR	014003218		A41666	IT7	AN/TPQ-37 (V)8	2	1	6	9	-3	R
6	R	88.90	FMTV	014473892		T94709	BUD	M1089A1W	36	4	108	36	72	A
7	R	80	GEN SET DIESEL ENG	013172133		G17460	VNB		5	1	15	1	14	A
8	R	0	GEN ST DSL MEP-016B	011504140		G54041	VGW		1	1	3	1	2	A
9	R	89.50	HEMTT	010970260		T39518	B2D	M977WW	19	2	57	18	39	A
10	R	89.20	HEMTT	011957641		T63093	B2L	M984A1WW	37	4	111	36	75	A

Maintenance Summary

FORSCOM - 3rd Infantry Division - UEx

Equipment:	BRADLEY	As of Date:	29-Dec-2004
Equipment Availability Rate:	89.2%		
On Hand:	343	Authorizations:	219
Non Mission Capable:	37	Asset Position:	124
Non Mission Capable Maintenance:	6	Avg Parts Wait Time:	57.20
Non Mission Capable Supply:	31	Average Down Days:	63.30
Non Mission Capable Equip:	0		

	Owner	NIIN	Model	EIC	NMC	NMCS	NMCM	NMCE
1	WAP9A0	014059887	M3A2WODS	APF	1	1	0	0
2	WAP9A1	014059887	M3A2WODS	APF	0	0	0	0
3	WAP9B0	014059887	M3A2WODS	APF	3	2	1	0
4	WAP9B1	014059887	M3A2WODS	APF	0	0	0	0
5	WAP9C0	014059887	M3A2WODS	APF	2	2	0	0
6	WAP9C1	014059887	M3A2WODS	APF	0	0	0	0
7	WAP9T1	014059887	M3A2WODS	APF	0	0	0	0
8	WAP9T1	014321526	M7	AP7	0	0	0	0
9	WAQ1A1	014059886	M2A2WODS	APE	0	0	0	0
10	WAQ1B0	012487619	M2A2	ALG	1	1	0	0
11	WAQ1B1	012487619	M2A2	ALG	0	0	0	0
12	WAQ1T0	014059886	M2A2WODS	APE	0	0	0	0

Unit/Org Workload Planner

FORSCOM - 3rd Infantry Division - UEx

The number of work orders found: 24

Technical Manual

	Export to Microsoft Excel											
	UNIT UIC	**ORGWON**	**NIIN**	**NOMEN 35**	**SERIAL NUM**	**ADMIN NO**	**MODEL**	**FAULT**	**MNT UIC**	**MNT WO**	**ORG STAT DESC**	**DATE NMC**	**DOWNDAYS**
1	WAR0B0	0403316	014059886	FIGHTG VEH M2A2 W/ODS	2ADR0306F	B32	M2A2WODS	RAMP PUMP INOP	NONE		Awaiting deadlining NMCS parts.	08-Nov-2004	52
2	WAR0B0	0403315	014059886	FIGHTG VEH M2A2 W/ODS	2ADR0298F	B22	M2A2WODS	RAMP PUMP INOP	NONE		Awaiting deadlining NMCS parts.	08-Nov-2004	52
3	WAQEA0	0407421	014059886	FIGHTG VEH M2A2 W/ODS	2ADR0049F	A11	M2A2WODS	FAILS TOW B.T	WJAUB0	A408117	EVAC NMCM. NMCM item evacuated to another maintenance activity for repair and return.	02-Nov-2004	58
4	WAQEA0	0407420	014059886	FIGHTG VEH M2A2 W/ODS	2ADR0059F	A12	M2A2WODS	GUNNERS HAND S	NONE		Awaiting deadlining NMCS parts.	03-Nov-2004	57
5	WAQEA0	0407303	014059886	FIGHTG VEH M2A2 W/ODS	2ADR0095F	A32	M2A2WODS	2W231,2W233,2	NONE		Awaiting deadlining NMCS parts.	07-Oct-2004	84
6	WAQEA0	0407396	014059886	FIGHTG VEH M2A2 W/ODS	2ADR0104F	A24	M2A2WODS	RAMP PUMP UNSE	NONE		Awaiting deadlining NMCS parts.	01-Nov-2004	59
7	WAQEB0	0409134	014059886	FIGHTG VEH M2A2 W/ODS	2ADR0070F	B12	M2A2WODS	COCK VALVE POP	NONE		Awaiting deadlining NMCS parts.	03-Nov-2004	57

Workorder Detail

Org Workorder:	0407396	Serial No:	2ADR0104F
Unit UIC:	WAQEA0	Admin No:	A24
DS Workorder:		Model:	M2A2WODS
Mnt UIC:		NIIN:	014059886
		Eq Noun:	INFANTRY FIG
Date NMC:	01-Nov-2004	Year Mfg:	
Down Days:	59		
WO Status:		Usg Reading:	
WO Stat Dt:	00000	Date Usg Rpt:	
WO Manhrs:	0	Manhrs Projected:	

Fault:	RAMP PUMP UNSE
Evac WO:	
Evac Dt:	
Evac Status:	
Evac Stat Dt:	
Evac Manhrs:	

Org Workorder Parts

Export to Microsoft Excel

	PART LOCATOR	NIIN	NOUN	QTY	DATE REQUISITIONED	DOC NUM	SUPP PIPE DESCR	SSF	ASL	NSL
1	LOCATE	012249247	CYLINDER,A	1	01-Nov-2004	W33VU843060004	BACKORDER BY NICP	Y		Y
2	LOCATE	014239352	CABLE ASSE	1	01-Nov-2004	W33VU843060003	BACKORDER BY NICP	Y		Y

NIIN Locations

LOG911 | H

NIIN: 012249247

[Export to Microsoft Excel]

	RIC FROM	RIC STOR	ADDR LINE2
1	AKZ	A1D	WHSE BLD... MURPHY L...
2	ABX	ABX	RIMBURGE... BLDG AD...
3	ABX	ABX	RIMBURGE... BLDG AD...
4	AKZ	AK7	BUILDING ... AWC...
5	AKZ	AMR	G AVE RE... BLDG...
6	AKZ	AMX	BLDG 8350 A... STR...
7	AKZ	ANF	RAY BAR... BLDG ...
8	AKZ	AW1	UPTON AV... 224...
9	AKZ	AW9	BUILDIN...
10	AKZ	AW9	BUILDIN...

		ADDR LAST LINE	DODAAC	STATUS	QTY	OWNERSHIP PURPOSE CODE	CONDITION CODE		PROJ CD
6	AKZ	AMX	STR		R	0	GENERAL ISSUE	WITHOUT QUALIFICATION)	N/A
7	AKZ	ANF	RAY BARRACKS BLDG 4018	N/A	R	0	GENERAL ISSUE	SERVICEABLE(ISSUABLE WITHOUT QUALIFICATION)	N/A
8	AKZ	AW1	UPTON AVE BLDG 224	N/A	R	0	GENERAL ISSUE	SERVICEABLE(ISSUABLE WITHOUT QUALIFICATION)	N/A
9	AKZ	AW9	BUILDING 2916	N/A	R	0	GENERAL ISSUE	SERVICEABLE(ISSUABLE WITHOUT QUALIFICATION)	N/A
10	AKZ	AW9	BUILDING 2916	N/A	R	1	POTENTIAL EXCESS	UNSERVICEABLE (REPARABLE)	N/A
11	AKZ	AXB	BLDG 2807	N/A	R	0	GENERAL ISSUE	SERVICEABLE(ISSUABLE WITHOUT QUALIFICATION)	N/A
12	BR0	BR0	BLDG 321 S	N/A	R	6	RESERVED FOR PRODUCTION AND MAINTENANCE	SERVICEABLE(ISSUABLE WITHOUT QUALIFICATION)	N/A
13	AKZ	BR4	GATE 44 BLDG 184	N/A	G	10	GENERAL ISSUE	SERVICEABLE(ISSUABLE WITHOUT QUALIFICATION)	N/A
14	AKZ	BR4	GATE 44 BLDG 184	N/A	R	1	GENERAL ISSUE	UNSERVICEABLE (REPARABLE)	N/A
15	AKZ	BR4	GATE 44 BLDG 184	N/A	R	1	POTENTIAL EXCESS	UNSERVICEABLE (CONDEMNED)	N/A
16	AKZ	BXN	MF CRP DOL BLDG 330 CHILES AVE	N/A	G	1	GENERAL ISSUE	SERVICEABLE(ISSUABLE WITHOUT QUALIFICATION)	N/A
17	N/A	C97	VIA AURELIA BLDG 5030	N/A	R	2	ARMY PRE-POSITIONED SETS - SUPPORT MATERIEL	SERVICEABLE(ISSUABLE WITHOUT QUALIFICATION)	MMB
18	AKZ	W1B	TDC BAGHDAD IAP	N/A	R	0	GENERAL ISSUE	SERVICEABLE(ISSUABLE WITHOUT QUALIFICATION)	N/A
19	AKZ	W1X	BLDG 330 O CONNEL BLVD	N/A	R	0	GENERAL ISSUE	SERVICEABLE(ISSUABLE WITHOUT QUALIFICATION)	N/A

Brigade Deadlined Worksheet (Reportable Items)
Brigade Maintenance Officer

Last Update: 29-Dec-2004 13:49

Days Remaining in Reporting Period: 17

FORSCOM - 3rd Infantry Division - Brigade UA 1
(Brigade Rollup)

Sustainment/Support Workload Summary

1-3 ADA	1-41 FA	1st STB	2-7 INF	3-69 AR	5-7 CAV	BSB	HHC
BN rollup	BN rollup	BN rollup	BN rollup	BN rollup	BN rollup	BN rollup	BN rollup
Unit/Org Workload	Unit/Org Workload	Unit/Org Workload	Unit/Org Workload	Unit/Org Workload	Unit/Org Workload	Unit/Org Workload	Unit/Org Workload

Export to Microsoft Excel

	CURRENT_STATUS	EA_RATE	WPN	NIIN	GRAPH	LIN	EIC	MODEL	QTY	NMC	BANK_DAYS	BURN_DAYS	NMC_DAYS_LEFT	PROJ_STATUS
1	R	0	ACE	008087100		W76473		M9	0	1	0	9	-9	R
2	R	80	BRADLEY	012487619				M2A2	10	2	30	18	12	A
3	R	88.60	BRADLEY	014059886				A2WODS	44	5	135	45	90	A
4	R	0	HEMTT	011007673				M985	1	1	3	9	-6	R
5	G	93	ABRAMS	010871095				M1A1	43	3	132	27	105	G
6	G	100	AVENGER	013786963			TWQ1		24	0	75	0	75	G
7	G	95.80	BRADLEY	014480368				M6	24	1	75	9	66	G
8	G	100	BRADLEY	014321526		F86571	AP7	M7	6	0	18	0	18	G
9	G	100	FIREFINDER RADAR	012705100		A41666	IYF	AN/TPQ-37(V)6	1	0	3	0	3	G
10	G	98.20	FMTV	013543385		T60081	BHD	M1078	113	2	348	18	330	G

Graphs Menu

Current NMC Systems and Parts Wait Time

Parts Requisitions by SOS

Backorders by SOS
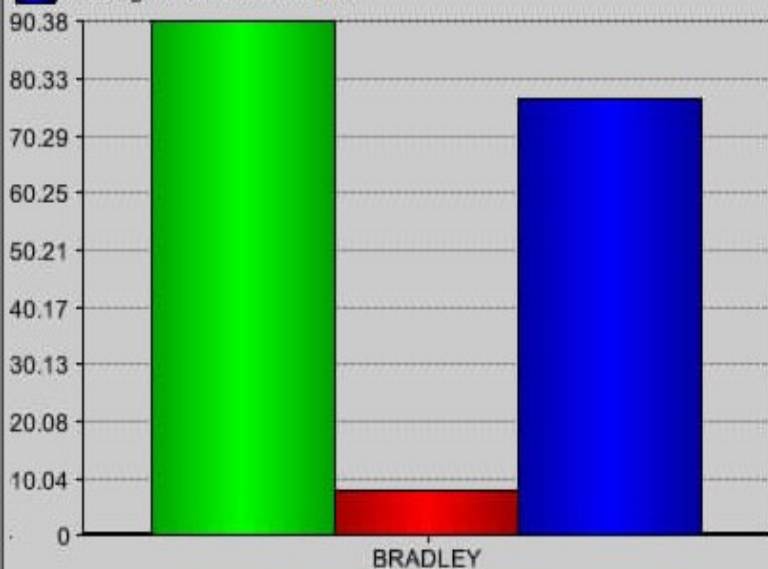
Average Wait Time by SOS

Close Menu

Snapshot

FORSCOM - 3rd Infantry Division - Brigade UA 1

Equipment NIIN: 014059886

- Average System Down Time
- Number of Requisitions
- Average Wait Time on Parts

BRADLEY

EA%: 88.6

On Hand: 44

Quantity NMC: 5

Direct Support Shop Workload Summary
Support Operations Officer

FORSCOM - 3rd Infantry Division - Brigade UA 1

	EQ NIIN	EIC	EQ NOUN	MODEL	NMC	WPN	AT RISK
1	001139768	GFV	PWR SUPY PP-4763A/GRC	PP4763AGRC	1		
2	005430012	HKR	TELEPHONE S TA-312/PT	TA312PT	1		
3	010871095	AAB	TANK CMBT 120MM M1AI	M1A1	4	ABRAMS	
4	010960872		VIEWER,NIGHT VISION		1		
5	011057793		VIEWER,NIGHT VISION		5		
6	012230267	KUJ	POWER SUPP PP-6224B/U	PP6224BU	1		
7	012280939	IPT	NIGHT VIS G AN/PVS-7A	PVS7A	1		
8	012487619	ALG	FIGHTING VEH HS M2A2	M2A2	1	BRADLEY	R
9	012490356		RECEIVER-TRANSMITTE		2		
10	012493951		AMPLIFIER,RADIO FRE		2		
11	012518702	5FE	DEC APP PR DRV LW M17	M17	1		
12	012643070		CABLE ASSEMBLY		2		
13	012914763	1M4	THERMAL IMAGING SYS	1M4NOMODEL	1		
14	013091309		CONTROL-MONITOR		1		
15	013294802	GD4	SML EX AN/TTC-48C(V)1	TTC48CV1	2	SMALL EXTENSION NODE SWITCH	
16	013294808	GAV	SM EXT AN/TTC-48C(V)2	TTC48CV2	2		
17	013343164		AMPLIFIER,ADAPTER,V		1		
18	013746643	KR8	NAV ST SYS AN/PSN-11	PSN11	3		
19	013823218		CONTROL,INTERCOMMUN		1		
20	013890640		KEYBOARD,DATA ENTRY		3		

>>

All Parts

FORSCOM - 3rd Infantry Division - Brigade UA 1

Show At-Risk Parts

Export to Microsoft Excel

	MNT UIC	MNT WO	DOC NUM	DT RQN	NIIN	EQ NOUN	SERIAL NUM	ADMIN NO	QTY	STATUS DESC	DAYS AWAITING PARTS	ESD	SSF	ASL	NSL	WEAPON
1	WJJ6A1	B400004	W33VTJ42660001	22-Sep-2004	002257111	SWITCHES	00381A	A213S	4	DELIVERED TO CUSTOMER	0		Y		Y	
2	WJATB0	A401966	W33VUL42330001	20-Aug-2004	005031145	RINGER,TELEP	13707		1	DELIVERED TO CUSTOMER	0		Y		Y	
3	WJATB0	A401966	W33VUL42330003	20-Aug-2004	006699145	HANDSET	13707		1	DELIVERED TO CUSTOMER	0		Y		Y	
4	WJJ6A1	B400021	W33VTJ42680001	24-Sep-2004	010239815	CCA.INTERFAC	00646A	A223S	1	DELIVERED TO CUSTOMER	0		Y		Y	SMALL EXTENSION NODE SWITCH
5	WJJ6A1	B400004	W33VTJ42610010	17-Sep-2004	010256231	CABLE ASSY	00381A	A213S	1	DELIVERED TO CUSTOMER	0		Y		Y	
6	WJATB0	A401132	W33VUL40610020	01-Mar-2004	010271554	TUBE AND MAG	62542		1	DELIVERED TO CUSTOMER	0		Y		Y	
7	WJATB0	A402640	W33VUL42780016	04-Oct-2004	010271560	ADAPTER ASSE	0346F		1	DELIVERED TO CUSTOMER	0		Y		Y	
										DELIVERED						

Parts Tracker Plus
Distribution-based Logistics
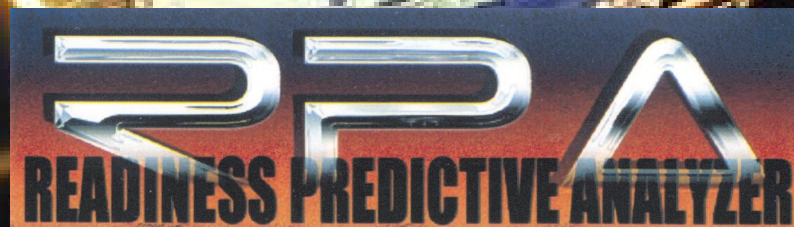
DOCUMENT NUMBER: W33VTJ42660001
NIIN: 002257111 **QUANTITY:** 4 **NOMEN:** SWITCHES

	LOCATION:	DATE:
Source of Supply	XR W4GG TACOM ROCK ISLAND TACOM ROCK ISLAND SSF BLDG 104 RODMAN AVE ROCK ISLAND , ILLINOIS	
Depot	SR 0226 QM CO SUP SVC AWCF SSF BLDG 1160 SIGMA ST FT STEWART GA 31314-5185	RELEASED: 09/28/2004 SHIP: 09/28/2004
Consolidated Containerization Point		
Port		
Supply Support Activity		
Materiel Received	SR 0226 QM CO SUP SVC AWCF SSF BLDG 1160 SIGMA ST FT STEWART GA 31314-5185	RECEIPT: 09/28/2004

RPA Benefits for National and Strategic Levels

- **Access to Data and Analytic Tools Providing "Near Real Time" Assessments of Future Fleet Availability to Support Operations**

  – **Utilize "Near Real Time" Operational Availability to Prepare/Evaluate "What If" Scenarios**

  – **Build Contingency Forces based on Available Weapon Systems or Units**

- **Targets Weapon Systems That May Not Reach Readiness Goals**

- **Targets Data Reporting Issues for Resolution**

- **Targets Data Received Across All Business Processes and All Classes of User; Joint, Strategic, National, and Tactical Levels… Provides Larger Population for Analysis**

- **Leverages Web Technology to Provide Current and Timely Logistics Information and Analysis**

- **Supports Transformation to the Enterprise, Complementing Legacy, Transitional, and Enterprise Environments**

- **Capability Integrates Numerous Business Processes and LOGSA Tools - User Can Access Various Tools Within RPA (RPA Users Do Not Have To Move Out Of RPA To Access Different Tools)**

Supporting Warfighters Globally

RPA
READINESS PREDICTIVE ANALYZER

USAMC Logistics Support Activity

LOGSA

Implications from Empirical Analyses for Readiness Modeling and Improvement
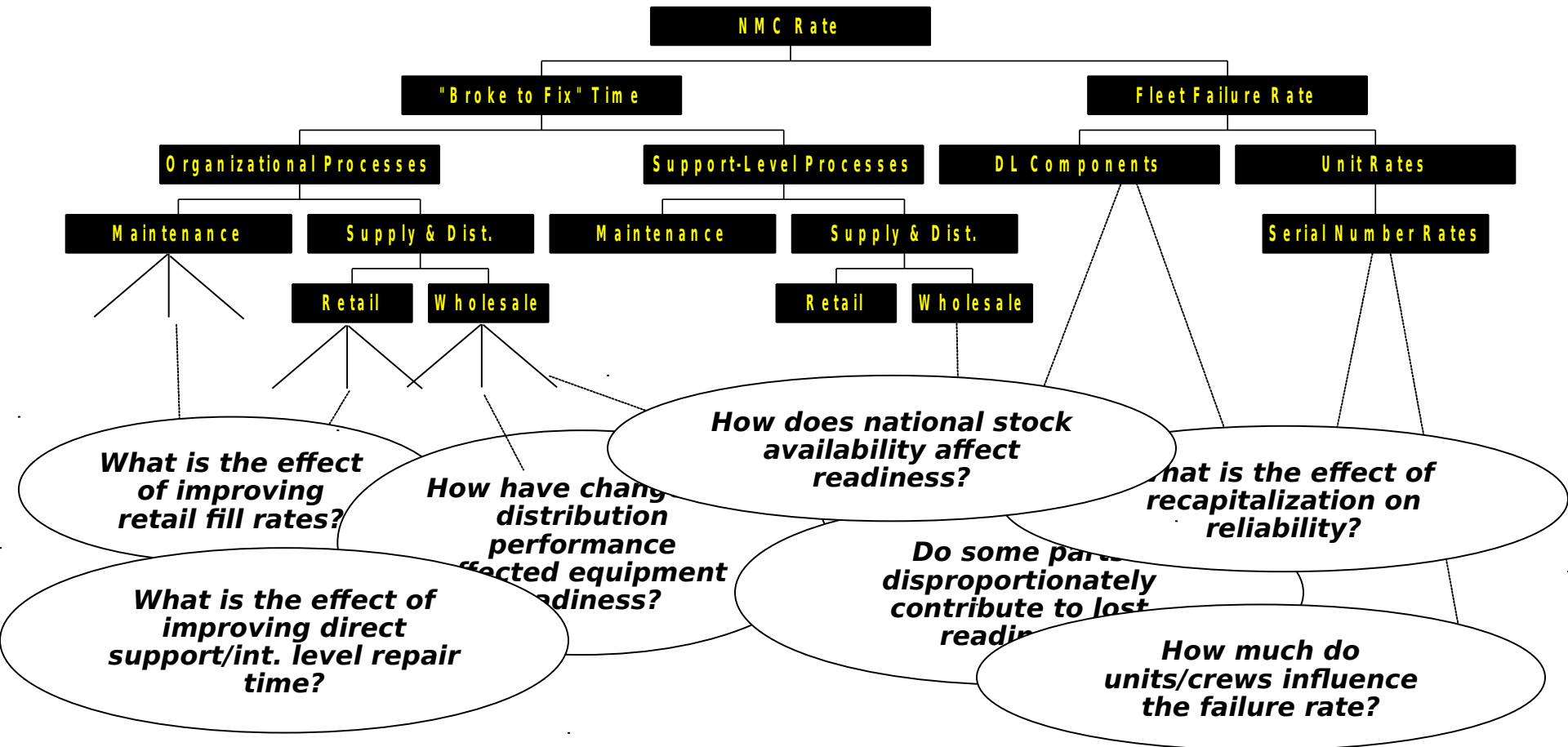
January 2005

Outline

– **Linking integrated maintenance and supply data to readiness: the Equipment Downtime Analyzer (EDA)**

– **Empirical analyses have implications for readiness modeling functions and assumptions**

– **Empirical analyses shed new light on how supply chain performance affects maintenance turnaround time and how different factors affect equipment failure rates**

EDA Hierarchy Decomposes Equipment Readiness to Root Process Metrics to Improve Decision-making
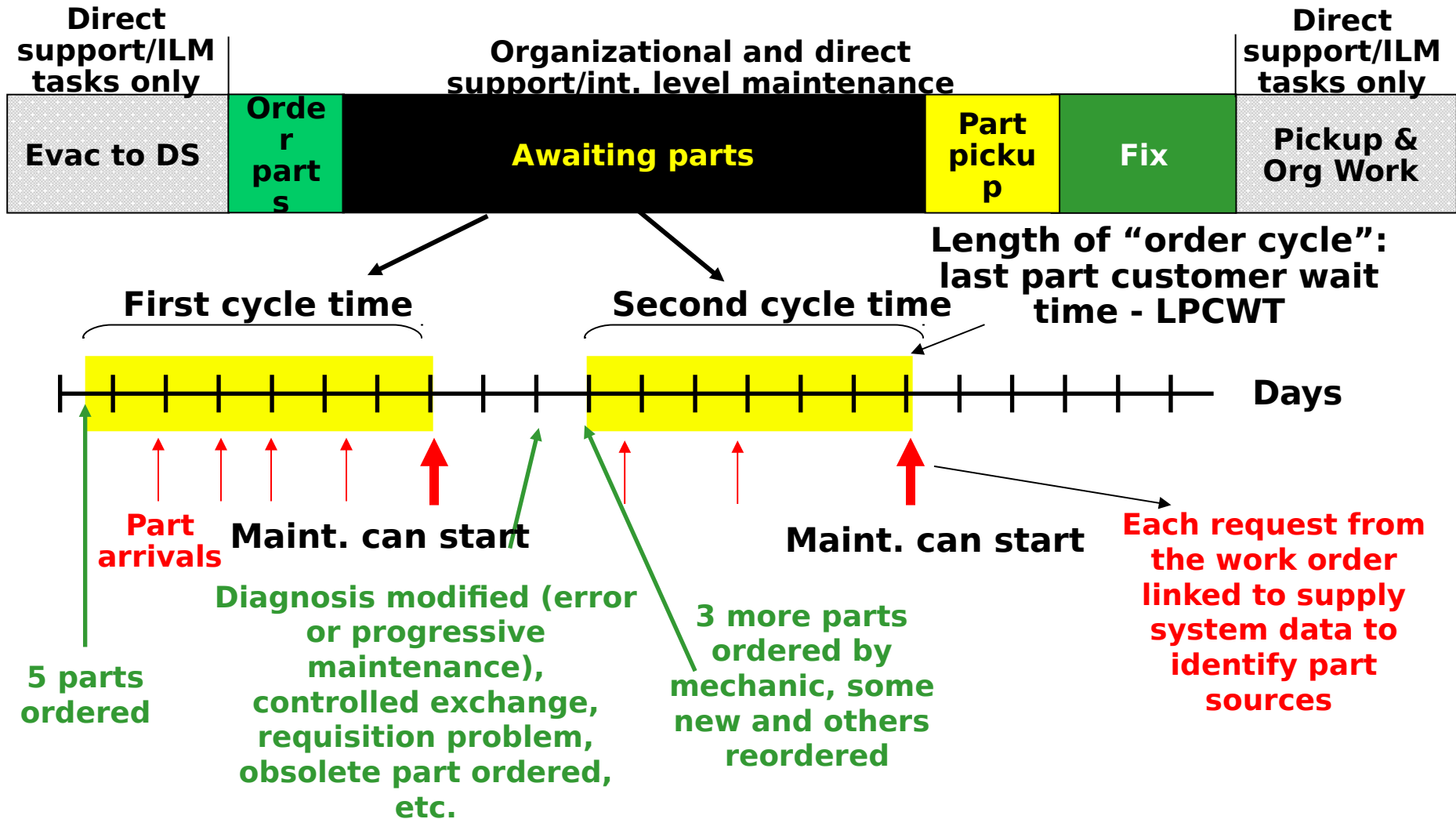
Archives end item serial-number-level NMC maintenance histories, including supply and d

```
                                    NMC Rate
                    ┌──────────────────┴──────────────────┐
            "Broke to Fix" Time                    Fleet Failure Rate
         ┌──────────┴──────────┐              ┌──────────┴──────────┐
Organizational Processes  Support-Level Processes   DL Components    Unit Rates
    ┌────────┴────────┐      ┌────────┴────────┐                         │
Maintenance   Supply & Dist.  Maintenance  Supply & Dist.      Serial Number Rates
              ┌──────┴──────┐              ┌──────┴──────┐
           Retail      Wholesale        Retail      Wholesale
```

What is the effect of improving retail fill rates?

What is the effect of improving direct support/int. level repair time?

How have chang... distribution performance ...ffected equipment ...adiness?

How does national stock availability affect readiness?

Do some part... disproportionately contribute to lost readi...

...hat is the effect of recapitalization on reliability?

How much do units/crews influence the failure rate?

EDA Facilitates Modeling that Accounts for the Real World Complexities of the Maint. Process

Direct support/ILM tasks only		Organizational and direct support/int. level maintenance				Direct support/ILM tasks only
Evac to DS	Order parts	Awaiting parts	Part pickup	Fix		Pickup & Org Work

EDA Facilitates Modeling that Accounts for the Real World Complexities of the Maint. Process

EDA "Tree" Facilitates Problem Diagnosis and Benchmarking and the Data Support Improved Readiness Analysis

Select component to battalion level

Findings from Recent EDA-Based Research Have Implications for Readiness Modeling

- **Contributions of parts to readiness**
  - **Depends upon having all parts for a work order**
  - **Dependency among parts related to unit price (not evident for aviation)**
  - **Relative contributions to readiness vary among parts**

- **Behaviors vary with conditions**
  - **Part wait time affects workarounds to outstanding part requests**
  - **Situation importance affects workarounds & maint. segment times**
    - **Operations and training exercises**
    - **Management goals**
    - **End item criticality**
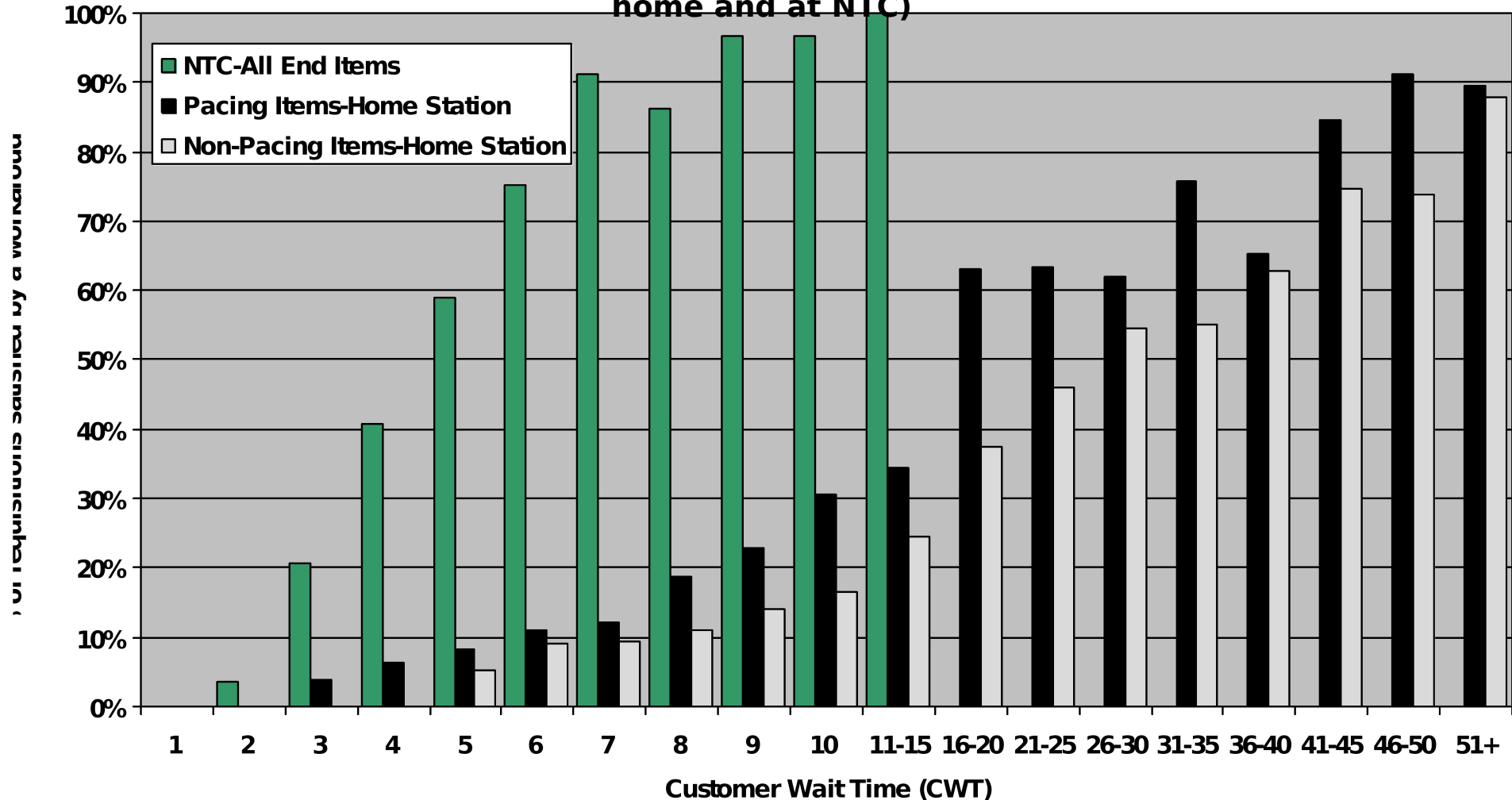   - **End item failure rate/current readiness posture**

Many Inexpensive Parts Are Necessary, But They Are Not Sufficient to Complete Repairs

Source: NMC work orders, Sep 15 – Oct 30 of OIF (similar results found in other samples—end items, time, loca...

The Workaround Rate Is a Function of CWT and "Readiness Pressure"

Workaround % vs. CWT for deadlining requisitions in one division (over 12 months at home and at NTC)

Legend:
- ■ NTC-All End Items
- ■ Pacing Items-Home Station
- □ Non-Pacing Items-Home Station

X-axis: Customer Wait Time (CWT) — 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11-15, 16-20, 21-25, 26-30, 31-35, 36-40, 41-45, 46-50, 51+

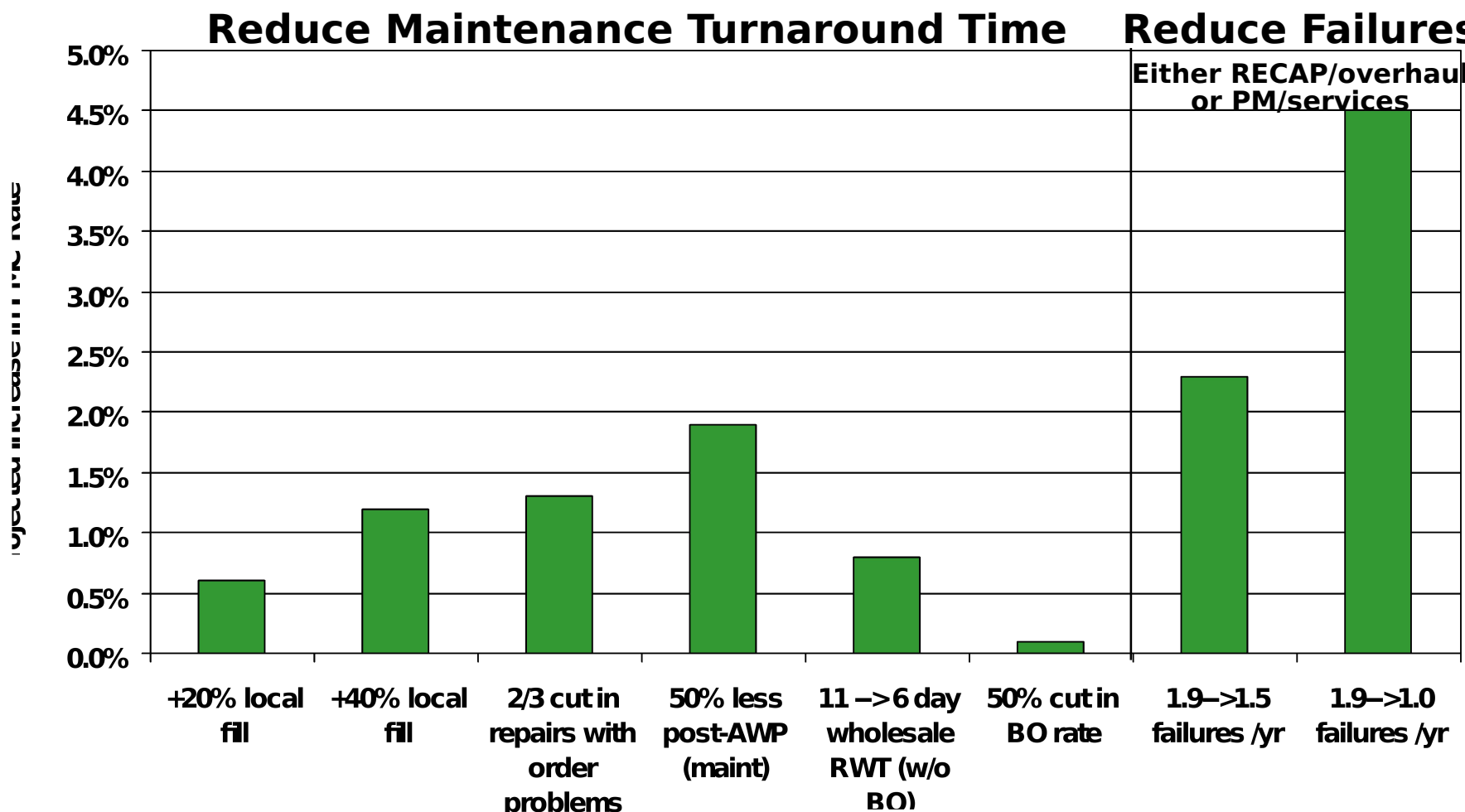Y-axis: % requisitions satisfied by a workaround — 0% to 100%

Workaround – action outside of standard supply channels taken to satisfy a part need (e.g., controlled exchange)
Pacing item – Army designation for readiness reporting for critical end items central to a unit's mission (e.g., tank in Ar...
Data sources: CTASC and SAMS-2

Findings from Empirical Analyses with Implications for Improving Readiness

- The effects of the supply chain on maintenance turnaround time
  - The "local" fill rate (inventory and workarounds) is the key driver of unscheduled maintenance turnaround time
    - Local inventory requirements, especially given storage constraints for mobile units, depend upon distribution and national supply availability performance
  - Preliminary finding for aviation: wholesale distribution time has much stronger impact on phase maintenance turnaround time than unscheduled maint. time
  - Backorder rates for Army managed items are correlated with readiness
    - No empirical evidence of correlation for DLA managed items for ground systems (could be due to limited change in DLA rates), some correlation found for aviation systems

- The effects on failure rates
  - Serial number level analysis has found strong relationships between age and mission critical failure rates
  - Operator/crew PMCS and org-level scheduled service quality have been found to be significantly related to mission critical failure rates

The EDA Can Be Used to Estimate the Potential of Alternative Interventions, Accounting for Behavioral Effects

Potential Effects on Equipment Readiness of Logistics System/Equipment Changes

Reduce Maintenance Turnaround Time   Reduce Failures

Either RECAP/overhaul or PM/services

Projected increase in FMC rate

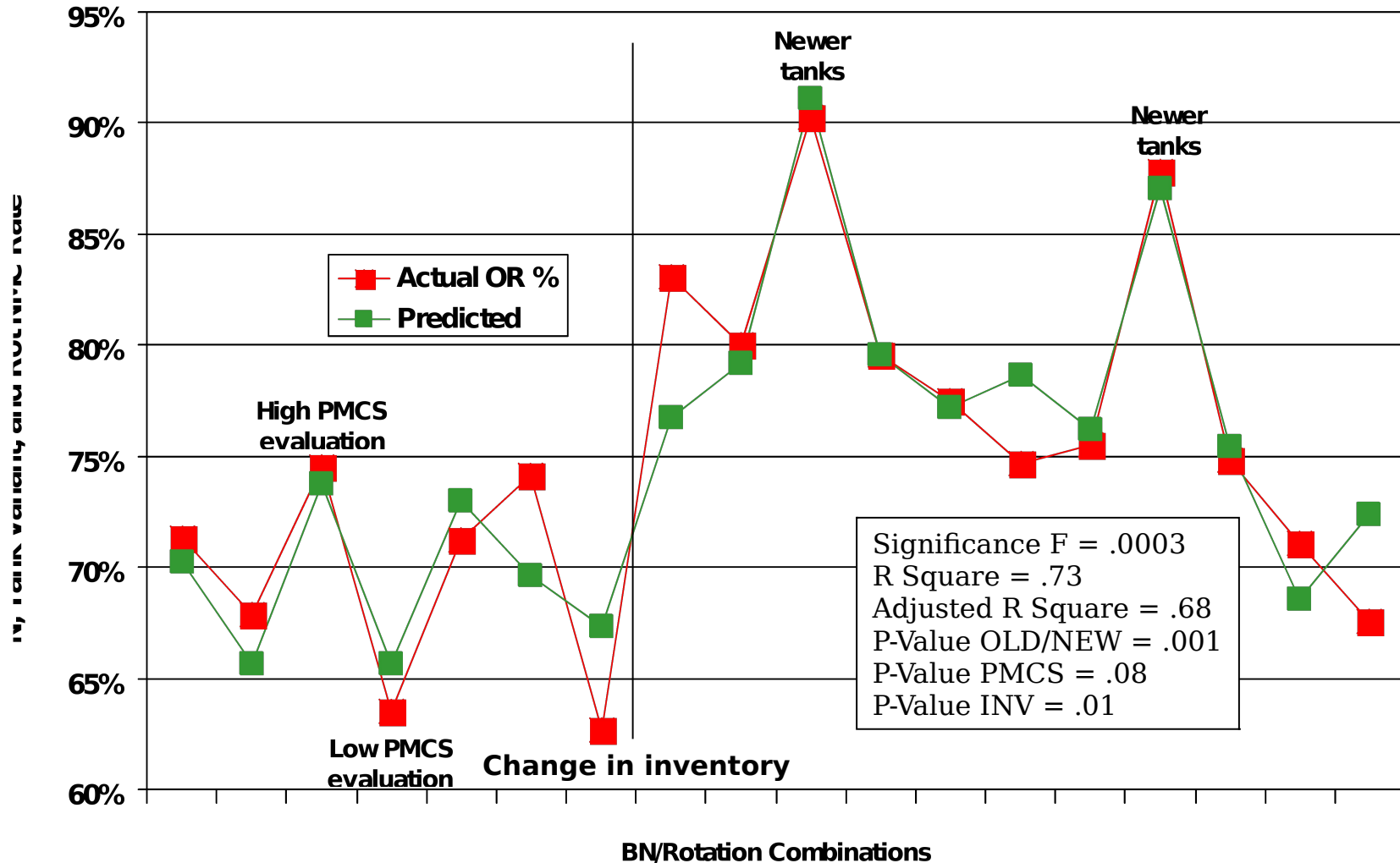| Category	Value
+20% local fill	0.6%
+40% local fill	1.2%
2/3 cut in repairs with order problems	1.3%
50% less post-AWP (maint)	1.9%
11 –>6 day wholesale RWT (w/o BO)	0.8%
50% cut in BO rate	0.1%
1.9–>1.5 failures /yr	2.3%
1.9–>1.0 failures /yr	4.5%

Second order effects possible (e.g., hidden AWP time counted as maintenance time)

Note: High backorders make it difficult to achieve high local fill rates, can drive up tactical ROs, and hamper effective national stock positioning

M1 Age, Inventory Methodology, and PMCS Quality Predict Operational Readiness at NTC

M1 Readiness Results at NTC
Each Data Set Depicts One Battalion Over One Rotation

Newer tanks

Newer tanks

High PMCS evaluation

Low PMCS evaluation

Change in inventory

Significance F = .0003
R Square = .73
Adjusted R Square = .68
P-Value OLD/NEW = .001
P-Value PMCS = .08
P-Value INV = .01

- Actual OR %
- Predicted

BN/Rotation Combinations

Conclusions

– **Decomposition of lost readiness can identify systemic problems**

– **The effects of logistics system interventions can be projected**

– **Effect of intervention / change depends upon "leverage"**

- **Effect of increment of change, including system reactions**

- **Amount of change possible**

- **Projection must include maintenance behavior or "reactions"**

– **Statistical trend analysis of equipment readiness generally much less useful**

- **"Surprises" cannot be predicted statistically**

- **Statistical analysis of Army readiness data found that short-term changes in readiness not statistically different than random variation**